

**Amendments to the Drawings:**

Applicants submit herewith Replacement Sheets including drawing changes to Figs. 9 and 11 to conform the drawings to the written description. In particular, Applicant has amended Fig. 11 to add a legend such as "Prior Art" and Fig. 9 has been amended to remove redundant use of reference numeral 107. No new matter is being introduced by these drawing changes.

Applicants respectfully request Examiner to substitute the attached Replacement Sheets of corrected drawings for the drawing sheets depicting Figs. 9 and 11 filed on October 20, 2006.

Attachment: 2 Replacement Sheets

### **REMARKS**

This Amendment is submitted in response to the Office Action mailed on November 10, 2009. Claims 18, 23, 25-26, and 28 been amended, and claims 18-29, 31 and 32 remain pending in the present application. In view of the foregoing amendments, as well as the following remarks, Applicants respectfully submit that this application is in complete condition for allowance and request reconsideration of the application in this regard.

#### **Examiner's Objections to the Application**

The title has been amended to reflect the claimed subject matter of the present application and the specification has been amended to correct typographical errors.

Various amendments to the specification have been made to correct typographical errors as requested by the Examiner.

Claims 25-26 and 28 have also been amended to remove the multiple dependencies.

#### **Rejection of the claims under 35 U.S.C. §112**

Applicants have amended claim 25 to provide strict antecedent basis for the "plurality of blanks." Regarding claim 19, Applicants respectfully submit that the claim language, as filed, is not indefinite. Specifically, claim 18 recites that "the cavity

in the surface of the support has a round or oval contour" while claim 19 recites "the support has a rectangular and particularly a square contour." In claim 18, it is the cavity that includes the round or oval contour, not the support. Accordingly, claim 19 includes a rectangular or square support with a round or oval cavity formed therein.

Applicants respectfully request that these rejections be withdrawn.

Rejection of the claims under 35 U.S.C. §§102 and 103

Claims 18-27 stand rejected under 35 U.S.C. §102(b) as being anticipated by or, in the alternative, under 35 U.S.C. §103(a) as obvious over Schiller, WO 01/000523, Tomonari et al., EP0599364 and Schieferdecker et al., U.S. Patent Application Publication No. 2003/0118076 and/or U.S. Patent No. 6,294,787. Claims 28, 29, 31 and 32 stand rejected under 35 U.S.C. §103(a) as being unpatentable over the above combination as applied to claims 18-27 above and further in view of Fujikawa et al., U.S. Patent No. 6,548,813.

While Applicants respectfully traverse these rejections, Applicants have amended independent claim 18 to more sharply define the claimed invention over the prior art of record and respectfully request that the rejections be withdrawn. More specifically, Applicants have amended claim 18 to incorporate the etching stop layer of claim 23.

In the Examiner's rejections of claims 18, it is suggested that Schiller teaches a shape such that no proof mass is retained and conductive layers for exciting

the fundamental vibration mode of the diaphragm layer. (Office Action page 5).

Schiller utilizes micro-electromechanical system (MEMS) technology for manufacture of sensors, such as piezoelectric (PZT) devices. Indeed, the portion recited by the Examiner regarding the fundamental vibration of the diaphragm layer is directed to the PZT function and is not applicable to Applicants' claimed invention. (see, Schiller Page 3, Lines 11-19; Page 9, Lines 11-19).

The particular placement of the diaphragm 40 is important in Schiller to ensure that the PZT is functional and the vibration of the diaphragm is not dampened by the substrate surface. By contrast, in the instant application the claimed invention is directed to a radiation sensor where the cavity and membrane provide thermal isolation of the sensing elements (see, Applicants ¶¶0002-0003).

The Examiner's note that Schiller etches a void having a shape with no proof mass retrained within the void does not allude or suggest a cavity having a round or oval contour. As a result, not only are the teachings of Schiller not applicable to the pending claims, but at least one unresolved difference remains between the claimed invention and the teachings of Schiller.

The Examiner suggests that the teachings of Tomonari include a rounded corner or circular cavity. (Office Action page 5). Yet, when the Tomonari reference is taken as a whole, it can be seen that Tomonari teaches a conically-shaped cavity (not orthogonal cavity side walls) having a generally circular shape at the top surface of the substrate. (see, Tomonari FIGS. 58-59). Tomonari does not teach or suggest any

cavity shape other than substantially square (Tomonari Col. 9, Lines 24-35; FIGS. 17-18) or having angular walls and thus a conical shape (Id. at Col. 15, Line 45-Col. 16, Line 16; FIGS. 58-59). As a result, at least one unresolved difference remains in comparing the pending claims with the teachings of Tomonari, alone or in combination with the other references.

The Examiner then relies on the teachings of Schieferdecker for showing different shapes of cavities and including an etching stop from claim 23. (Office Action pages 5-6). However, the only reference to an etching stop is as follows:

- Schieferdecker '787 teaches selection of the insulating layer (i.e., the membrane) to be the etching stop to prevent punch through during back-side etching (see Schieferdecker '787 Col. 6, Lines 43-45).
- Schieferdecker '076 teaches the use of a protective layer with a minor etching rate that is applied to the bottom of the substrate and patterned photolithographically. (Schieferdecker '076 ¶0065). In this way, the protective layer is performing as a mask layer.

As a result, neither Schieferdecker reference teaches an etching stop layer that is between the membrane and the one surface of the support, as claimed by Applicant.

For at least the foregoing reasons, the rejection of independent claim 18 should be removed. Further, as the remaining pending claims depend from claim 18, and ultimately contain all of the same element therein, the rejections of these claims should also be withdrawn.

While claims 28-29 and 31-32 depend from claim 18, and should be allowed for at least the reason that claim 18 is allowed, Applicants will address the Examiner's reliance on Fujikawa for the sake of completeness.

The Examiner is primarily relying on Fujikawa for teaching optical windows, optical projection elements, and so forth. Fujikawa is directed to a detection apparatus for discriminating plain paper from specialty paper. (Fujikawa abstract). Applicants' claimed apparatus is neither plain paper nor specialty paper and Fujikawa does not teach a radiation sensor having the elements provided in claim 1. Therefore, this rejection of the dependent claims should be withdrawn.

### **CONCLUSION**

In view of the foregoing response including the amendments and remarks, this application is submitted to be in complete condition for allowance and early notice to this affect is earnestly solicited. If there is any issue that remains which may be resolved by telephone conference, Examiner is invited to contact the undersigned in order to resolve the same and expedite the allowance of this application.

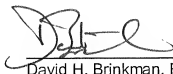
Application No. 10/555,713  
Amendment Dated 5/10/10  
Reply to Office Action of 11/10/09

Please see the electronic fee calculation sheet for the charge in the amount of \$1,110 for the three months extension fee as required by 37 C.F.R.

§1.17(a)(3). If any other fees are necessary, the Commissioner is hereby authorized to charge any underpayment or fees associated with this communication or credit any overpayment to Deposit Account No. 23-3000.

Respectfully submitted,

WOOD, HERRON & EVANS, L.L.P.

A handwritten signature in black ink, appearing to read 'D. Brinkman', is written over a horizontal line.

David H. Brinkman, Reg. No. 40,532

2700 Carew Tower  
441 Vine Street  
Cincinnati, OH 45202-2917  
(513) 241-2324 - Voice  
(513) 241-6234 - Facsimile